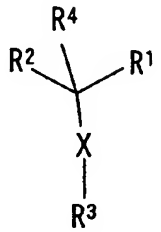
[Designation of Document] Claims

[Claim 1]

A compound represented by the following formula (1):

[Chemical formula 1]



(1)

(wherein, R^1 and R^3 each independently represents an aromatic hydrocarbon group which may have a substituent or an aromatic heterocyclic group which may have a substituent, R^2 represents a saturated or unsaturated monocyclic heterocyclic group or unsaturated polycyclic heterocyclic group which may have a substituent, R^4 represents a hydrogen atom or a C_{1-6} alkyl group, X represents -S-, -SO- or $-SO_2-$); an N-oxide or S-oxide thereof; a salt thereof; or a solvate thereof.

[Claim 2]

A compound according to Claim 1, wherein R^1 and R^3 each independently represents a phenyl group which may have a substituent; an N-oxide or S-oxide thereof; a salt thereof; or a solvate thereof.

[Claim 3]

A compound according to Claim 1, wherein R^1 and R^3

each independently represents an aromatic hydrocarbon group or aromatic heterocyclic group which may have 1 to 3 substituents selected from halogen atoms, C_{1-6} alkyl groups, trihalogenomethyl groups, C_{1-6} alkoxy groups, formyl group, C_{2-6} alkanoyl groups, carboxyl group, carboxyamino C_{1-6} alkyl groups, C_{1-6} alkoxycarbonylamino C_{1-6} alkyl groups, oxo group, nitro group, cyano group, amidino group, C_{2-6} alkenyloxy groups, hydroxy group, thioxo group, amino group, C_{1-6} alkylamino groups, di(C_{1-6} alkyl)amino groups, C_{1-6} alkoxycarbonyl groups, carbamoyl group, C_{1-6} alkylcarbamoyl groups, di(C_{1-6} alkyl)carbamoyl groups, thiocarbamoyl group, C_{1-6} alkylthiocarbamoyl groups, di(C_{1-6} alkyl)thiocarbamoyl groups, mercapto group, C_{1-6} alkylthio groups, C_{1-6} alkylsulfinyl groups and C_{1-6} alkylsulfonyl groups; an N-oxide or S-oxide thereof; a salt thereof; or a solvate thereof.

[Claim 4]

A compound according to Claim 1, wherein R^1 and R^3 each independently represents a phenyl group which may have 1 to 3 substituents selected from halogen atoms, C_{1-6} alkyl groups, trihalogenomethyl groups, C_{1-6} alkoxy groups, formyl group, C_{2-6} alkanoyl groups, carboxyl group, carboxyamino C_{1-6} alkyl groups, C_{1-6} alkoxycarbonylamino C_{1-6} alkyl groups, oxo group, nitro group, cyano group, amidino group, C_{2-6} alkenyloxy groups, hydroxy group, thioxo group, amino

group, C_{1-6} alkylamino groups, di(C_{1-6} alkyl)amino groups, C_{1-6} alkoxycarbonyl groups, carbamoyl group, C_{1-6} alkylcarbamoyl groups, di(C_{1-6} alkyl)carbamoyl groups, thiocarbamoyl group, C_{1-6} alkylthiocarbamoyl groups, di(C_{1-6} alkyl)thiocarbamoyl groups, mercapto group, C_{1-6} alkylthio groups, C_{1-6} alkylsulfinyl groups and C_{1-6} alkylsulfonyl groups; an N-oxide or S-oxide thereof; a salt thereof; or a solvate thereof.

[Claim 5]

A compound according to any one of Claims 1 to 4, wherein R^2 represents a pyridyl group which may have a substituent; an N-oxide or S-oxide thereof; a salt thereof; or a solvate thereof.

[Claim 6]

A compound according to any one of Claims 1 to 4, wherein R^2 represents a monocylic or polycyclic heterocyclic group which may have 1 to 3 substituents selected from halogen atoms, cyano group, C_{1-6} alkyl groups, hydroxy group, C_{1-6} alkoxy groups, C_{2-6} alkenyloxy groups, carboxy C_{1-6} alkyl groups, C_{1-6} alkoxycarbonyl C_{1-6} alkyl groups, heterocyclic-carbonyl C_{1-6} alkyl groups, hydroxy C_{1-6} alkyl groups, C_{6-10} aromatic hydrocarbon-sulfonyl C_{1-6} alkyl groups, N,N-dialkylaminosulfonyl C_{1-6} alkyl groups, heterocyclic-C_{1-6} alkyl groups, C_{6-10} aromatic hydrocarbon-C_{1-6} alkyl groups, C_{6-10} aromatic hydrocarbon-thio C_{1-6} alkyl

groups, azido-C_{1-6} alkyl groups, amino C_{1-6} alkyl groups, C_{1-6} alkylamino C_{1-6} alkyl groups, di(C_{1-6} alkyl)amino C_{1-6} alkyl groups, hydroxy C_{1-6} alkylamino C_{1-8} alkyl groups, C_{1-6} alkoxy C_{1-6} alkylamino C_{1-6} alkyl groups, bis(C_{1-6} alkoxy C_{1-6} alkyl)amino C_{1-6} alkyl groups, (hydroxy C_{1-6} alkyl)(C_{1-6} alkoxy C_{1-6} alkyl)amino C_{1-6} alkyl groups, C_{2-6} alkanoylamino C_{1-6} alkyl groups, di(C_{2-6} alkanoyl)amino C_{1-6} alkyl groups, carboxyamino C_{1-6} alkyl groups, di(C_{1-6} alkylcarbonylamino C_{1-6} alkyl)amino C_{1-6} alkyl groups, C_{1-6} alkoxycarbonylamino C_{1-6} alkyl groups, di(C_{1-6} alkoxycarbonyl)amino C_{1-6} alkyl groups, carbamoylamino C_{1-6} alkyl groups, N-C_{1-6} alkylcarbamoylamino C_{1-6} alkyl groups, N,N-di(C_{1-6} alkyl)carbamoylamino C_{1-6} alkyl groups, aminosulfonylamino C_{1-6} alkyl groups, N-C_{1-6} alkylsulfonylamino C_{1-6} alkyl groups, di(C_{1-6} alkyl)aminosulfonylamino C_{1-6} alkyl groups, C_{6-10} aromatic hydrocarbon-sulfonylamino-C_{1-6} alkanoylamino C_{1-6} alkyl groups, amino C_{1-6} alkylcarbonylamino C_{1-6} alkyl groups, N-C_{1-6} alkylamino C_{1-6} alkylcarbonylamino C_{1-6} alkyl groups, N,N-di(C_{1-6} alkyl)amino C_{1-6} alkylcarbonylamino C_{1-6} alkyl groups, heterocycle-C_{1-6} alkylcarbonylamino C_{1-6} alkyl groups, heterocycle-C_{2-6} alkenylcarbonylamino C_{1-6} alkyl groups, C_{6-10} aromatic hydrocarbon-alkenylcarbonylamino C_{1-6} alkyl groups, C_{6-10} aromatic hydrocarbon-carbonylamino C_{1-6} alkyl groups, C_{6-10} aromatic hydrocarbon-thiocarbonylamino C_{1-6} alkyl groups, heterocycle-carbonylamino C_{1-6} alkyl

groups, C_{1-6} alkoxyoxalylamino C_{1-6} alkyl groups, (C_{6-10} aromatic hydrocarbon-sulfonyl)(C_{1-6} alkyl)amino C_{1-6} alkyl groups, C_{1-6} alkylsulfonylamino C_{1-6} alkyl groups, C_{1-6} alkylsulfonylamino C_{1-6} alkyl groups, carbamoyloxy C_{1-6} alkyl groups, N-C_{1-6} alkylcarbamoyloxy C_{1-6} alkyl groups, N,N-di(C_{1-6} alkyl)carbamoyloxy C_{1-6} alkyl groups, C_{6-10} aromatic hydrocarbon-C_{1-6} alkylcarbamoyloxy C_{1-6} alkyl groups, C_{1-6} alkoxycarbonyloxy-C_{1-6} alkyl groups, C_{6-10} aromatic hydrocarbon-oxycarbonyloxy C_{1-6} alkyl groups, heterocyclic carbonylhydrazonomethyl groups, C_{6-10} aromatic hydrocarbon-carbonylhydrazonomethyl groups, C_{2-6} alkenyl groups, carboxy-C_{2-6} alkenyl groups, C_{1-6} alkoxycarbonyl-C_{2-6} alkenyl groups, carbamoyl C_{2-6} alkenyl groups, heterocycle-alkenyl groups, formyl group, carboxyl group, heterocycle-carbonyl groups, C_{6-10} aromatic hydrocarbon-carbonyl groups, C_{1-6} alkoxycarbonyl groups, carbamoyl group, N-C_{1-6} alkylcarbamoyl groups, N,N-di(C_{1-6} alkyl)carbamoyl groups, C_{3-8} cycloalkyl-C_{1-6} alkylcarbamoyl groups, C_{1-6} alkylthio C_{1-6} alkylcarbamoyl groups, C_{1-6} alkylsulfinyl C_{1-6} alkylcarbamoyl groups, C_{1-6} alkylsulfonyl C_{1-6} alkylcarbamoyl groups, hydroxyaminocarbonyl group, C_{1-6} alkoxycarbamoyl groups, hydroxy C_{1-6} alkylcarbamoyl groups, C_{1-6} alkoxy C_{1-6} alkylcarbamoyl groups, amino C_{1-6} alkylcarbamoyl groups, amino C_{1-6} alkylthiocarbamoyl groups, hydroxy C_{1-6} alkylcarbamoyl groups, C_{1-6} alkoxycarbonyl C_{1-6}

alkylcarbamoyl groups, C_{1-6} alkoxycarbonylamino C_{1-6} alkylcarbamoyl groups, C_{1-6} alkoxycarbonylamino C_{1-6} alkylthiocarbamoyl groups, heterocycle-carbamoyl groups, heterocycle-C_{1-6} alkylcarbamoyl groups, C_{6-10} aromatic hydrocarbon-carbamoyl groups, hydrazinocarbonyl group, N-C_{1-6} alkylhydrazinocarbonyl groups, N'-C_{1-6} alkylhydrazinocarbonyl groups, N',N'-di(C_{1-6} alkyl)hydrazinocarbonyl groups, N,N'-di(C_{1-6} alkyl)hydrazinocarbonyl groups, N,N',N'-tri(C_{1-6} alkyl)hydrazinocarbonyl groups, N'-(heterocycle-carbonyl)-hydrazinocarbonyl groups, amino group, C_{1-6} alkoxy C_{1-6} alkylamino groups, amino C_{1-6} alkylamino groups, C_{1-6} alkylamino C_{1-6} alkylamino groups, (C_{1-6} alkylamino C_{1-6} alkyl)(C_{1-6} alkyl)amino groups, (C_{1-6} alkylcarbonylamino C_{1-6} alkyl)amino groups, (C_{1-6} alkylsulfonylamino C_{1-6} alkyl)amino groups, C_{1-6} alkoxycarbonylamino C_{1-6} alkylamino groups, di(C_{1-6} alkyl)amino C_{1-6} alkylamino groups, heterocycle-amino C_{1-6} alkylamino groups, carboxyl C_{1-6} alkylamino groups, (carboxyl C_{1-6} alkyl)(C_{1-6} alkyl)amino groups, heterocycle-C_{1-6} alkylamino groups, (heterocycle-C_{1-6} alkyl)(C_{1-6} alkyl)amino groups, hydroxy C_{1-6} alkylamino groups, (hydroxy C_{1-6} alkyl)(C_{1-6} alkyl)amino groups, C_{1-6} alkylthio C_{1-6} alkylamino groups, C_{1-6} alkylaminocarbonyloxy C_{1-6} alkylamino groups, (C_{1-6} alkylaminocarbonyloxy C_{1-6} alkyl)(C_{1-6} alkyl)amino groups, C_{1-6} alkylsulfinyl C_{1-6} alkylamino

groups, C_{1-6} alkylsulfonyl C_{1-6} alkylamino groups, groups represented by the formula: $-N(R^{12})SO_2R^{11}$ (wherein, R^{11} represents a C_{1-6} alkyl group, heterocyclic group, C_{1-6} alkyl-heterocyclic group, heterocycle-C_{1-6} alkyl group, hydroxy C_{1-6} alkyl group, amino C_{1-6} alkyl group, C_{1-6} alkylamino C_{1-6} alkyl group, di(C_{1-6} alkyl)amino C_{1-6} alkyl group, carboxy C_{1-6} alkyl group, carbamoyl C_{1-6} alkyl group, trifluoromethyl group, difluoromethyl group, fluoromethyl group, amino group, C_{1-6} alkylamino group or di(C_{1-6} alkyl)amino group, R^{12} represents hydrogen atom, C_{1-6} alkyl group, hydroxy group or amino group), hydroxy C_{1-6} alkoxy C_{1-6} alkylamino groups, C_{6-10} aromatic hydrocarbon-C_{1-6} alkylamino groups, heterocycle-carbonylamino groups, C_{1-6} alkoxycarbonylamino groups, heterocycle-C_{1-6} alkylcarbonylamino groups, C_{6-10} aromatic hydrocarbon-carbonylamino groups, heterocycle-amino groups, hydroxyimino group, C_{1-6} alkoxyimino groups, oxo group, hydroxyimino C_{1-6} alkyl groups, C_{1-6} alkoxycarbonyl C_{1-6} alkylamino groups, (C_{2-6} alkanoylamino C_{1-6} alkyl)amino groups, C_{6-10} aromatic hydrocarbon groups, and heterocyclic groups (in which, the C_{6-10} aromatic hydrocarbon group or heterocycle or heterocyclic group may be substituted with 1 to 3 substituents selected from halogen atoms, C_{1-6} alkyl groups, C_{1-6} alkoxy groups, C_{2-6} alkenyl groups, formyl group, C_{2-6} alkanoyl groups, carboxyl group, carboxyamino

C_{1-6} alkyl groups, C_{1-6} alkoxycarbonylamino C_{1-6} alkyl groups, oxo group, nitro group, cyano group, amidino group, C_{2-6} alkenyloxy groups, hydroxy group, thioxo group, amino group, C_{1-6} alkylamino groups, di(C_{1-6} alkyl)amino groups, amino C_{1-6} alkyl groups, C_{1-6} alkoxycarbonyl groups, carbamoyl group, C_{1-6} alkylcarbamoyl groups, di(C_{1-6} alkyl)carbamoyl groups, thiocarbamoyl group, C_{1-6} alkylthiocarbamoyl groups, di(C_{1-6} alkyl)thiocarbamoyl groups, C_{2-6} alkanoylamino groups, C_{2-6} alkanoyl(C_{1-6} alkyl)amino groups, thio C_{2-6} alkanoylamino groups, thio C_{2-6} alkanoyl(C_{1-6} alkyl)amino groups, formylamino group, formyl(C_{1-6} alkyl)amino groups, thioformylamino group, thioformyl(C_{1-6} alkyl)amino groups, C_{2-6} alkanoyloxy groups, formyloxy group, mercapto group, C_{1-6} alkylthio groups, C_{1-6} alkylsulfinyl groups, C_{1-6} alkylsulfonyl groups, aminosulfonyl group, C_{1-6} alkylaminosulfonyl groups, di(C_{1-6} alkyl)aminosulfonyl groups, C_{1-6} alkylsulfonylamino groups, and C_{1-6} alkylsulfonyl(C_{1-6} alkyl)amino groups) ; an N-oxide or S-oxide thereof; a salt thereof; or a solvate thereof. [Claim 7]

A compound according to Claim 5, wherein R^2 represents a pyridyl group which may be substituted with 1 to 3 substituents selected from halogen atoms, cyano group, C_{1-6} alkyl groups, hydroxy group, C_{1-6} alkoxy groups, C_{2-6} alkenyloxy groups, carboxy C_{1-6} alkyl groups, C_{1-6}

alkoxycarbonyl C_{1-6} alkyl groups, heterocycle-carbonyl C_{1-6} alkyl groups, hydroxy C_{1-6} alkyl groups, C_{6-10} aromatic hydrocarbon-sulfonyl C_{1-6} alkyl groups, N,N-di(C_{1-6} alkyl)aminosulfonyl C_{1-6} alkyl groups, heterocycle-C_{1-6} alkyl groups, C_{6-10} aromatic hydrocarbon-C_{1-6} alkyl groups, C_{6-10} aromatic hydrocarbon-thio C_{1-6} alkyl groups, azido-C_{1-6} alkyl groups, amino C_{1-6} alkyl groups, C_{1-6} alkylamino C_{1-6} alkyl groups, di(C_{1-6} alkyl)amino C_{1-6} alkyl groups, hydroxy C_{1-6} alkylamino C_{1-6} alkyl groups, C_{1-6} alkoxy C_{1-6} alkylamino C_{1-6} alkyl groups, bis(C_{1-6} alkoxy C_{1-6} alkyl)amino C_{1-6} alkyl groups, (hydroxy C_{1-6} alkyl)(C_{1-6} alkoxy C_{1-6} alkyl)amino C_{1-6} alkyl groups, C_{2-6} alkanoylamino C_{1-6} alkyl groups, di(C_{2-6} alkanoyl)amino C_{1-6} alkyl groups, carboxyamino C_{1-6} alkyl groups, di(C_{1-6} alkylcarbonylamino C_{1-6} alkyl)amino C_{1-6} alkyl groups, C_{1-6} alkoxycarbonylamino C_{1-6} alkyl groups, di(C_{1-6} alkoxycarbonyl)amino C_{1-6} alkyl groups, carbamoylamino C_{1-6} alkyl groups, N-C_{1-6} alkylcarbamoylamino C_{1-6} alkyl groups, N,N-di(C_{1-6} alkyl)carbamoylamino C_{1-6} alkyl groups, aminosulfonylamino C_{1-6} alkyl groups, N-C_{1-6} alkylsulfonylamino C_{1-6} alkyl groups, di(C_{1-6} alkyl)aminosulfonylamino C_{1-6} alkyl groups, C_{6-10} aromatic hydrocarbon-sulfonylamino-C_{2-6} alkanoylamino C_{1-6} alkyl groups, amino C_{1-6} alkylcarbonylamino C_{1-6} alkyl groups, N-C_{1-6} alkylamino C_{1-6} alkylcarbonylamino C_{1-6} alkyl groups, N,N-di(C_{1-6} alkyl)amino C_{1-6} alkylcarbonylamino C_{1-6} alkyl

groups, heterocycle-C_{1-6} alkylcarbonylamino C_{1-6} alkyl groups, heterocycle-C_{2-6} alkenylcarbonylamino C_{1-6} alkyl groups, C_{6-10} aromatic hydrocarbon-C_{2-6} alkenylcarbonylamino C_{1-6} alkyl groups, C_{6-10} aromatic hydrocarbon-carbonylamino C_{1-6} alkyl groups, C_{6-10} aromatic hydrocarbon-thiocarbonylamino C_{1-6} alkyl groups, heterocycle-carbonylamino C_{1-6} alkyl groups, C_{1-6} alkoxyoxalylamino C_{1-6} alkyl groups, (C_{6-10} aromatic hydrocarbon-sulfonyl)(C_{1-6} alkyl)amino C_{1-6} alkyl groups, C_{1-6} alkylsulfonylamino C_{1-6} alkyl groups, C_{1-6} alkylsulfonylamino C_{1-6} alkyl groups, carbamoyloxy C_{1-6} alkyl groups, N-C_{1-6} alkylcarbamoyloxy C_{1-6} alkyl groups, N,N-di(C_{1-6} alkyl)carbamoyloxy C_{1-6} alkyl groups, C_{6-10} aromatic hydrocarbon-C_{1-6} alkylcarbamoyloxy C_{1-6} alkyl groups, C_{1-6} alkoxycarbonyloxy-C_{1-6} alkyl groups, C_{6-10} aromatic hydrocarbon-oxycarbonyloxy C_{1-6} alkyl groups, heterocycle carbonylhydrazonomethyl groups, C_{6-10} aromatic hydrocarbon carbonylhydrazonomethyl groups, C_{2-6} alkenyl groups, carboxy-C_{2-5} alkenyl groups, C_{1-6} alkoxycarbonyl-C_{2-6} alkenyl groups, carbamoyl C_{2-6} alkenyl groups, heterocycle-C_{2-6} alkenyl groups, formyl group, carboxyl group, heterocycle-carbonyl groups, C_{6-10} aromatic hydrocarbon-carbonyl groups, C_{1-6} alkoxycarbonyl groups, carbamoyl group, N-C_{1-6} alkylcarbamoyl groups, N,N-di(C_{1-6} alkyl)carbamoyl groups, C_{3-8} cycloalkyl-C_{1-6} alkylcarbamoyl groups, C_{1-6} alkylthio C_{1-6} alkylcarbamoyl groups, C_{1-6}

alkylsulfinyl C_{1-6} alkylcarbamoyl groups, C_{1-6} alkylsulfonyl C_{1-6} alkylcarbamoyl groups, hydroxyaminocarbonyl group, C_{1-6} alkoxycarbamoyl groups, hydroxy C_{1-6} alkylcarbamoyl groups, C_{1-6} alkoxy C_{1-6} alkylcarbamoyl groups, amino C_{1-6} alkylcarbamoyl groups, amino C_{1-6} alkylthiocarbamoyl groups, hydroxy C_{1-6} alkylcarbamoyl groups, C_{1-6} alkoxycarbonyl C_{1-6} alkylcarbamoyl groups, C_{1-6} alkoxycarbonylamino C_{1-6} alkylcarbamoyl groups, C_{1-6} alkoxycarbonylamino C_{1-6} alkylthiocarbamoyl groups, heterocycle-carbamoyl groups, heterocycle-C_{1-6} alkylcarbamoyl groups, C_{6-10} aromatic hydrocarbon-carbamoyl groups, hydrazinocarbonyl groups, N-C_{1-6} alkylhydrazinocarbonyl groups, N'-C_{1-6} alkylhydrazinocarbonyl groups, N',N'-di(C_{1-6} alkyl)hydrazinocarbonyl groups, N,N'-di(C_{1-6} alkyl)hydrazinocarbonyl groups, N,N',N'-tri(C_{1-6} alkyl)hydrazinocarbonyl groups, N'-(heterocycle-carbonyl)-hydrazinocarbonyl groups, amino group, C_{1-6} alkoxy C_{1-6} alkylamino groups, amino C_{1-6} alkylamino groups, (C_{1-6} alkylamino C_{1-6} alkylamino groups, (C_{1-6} alkylamino C_{1-6} alkyl)(C_{1-6} alkyl)amino groups, C_{1-6} alkoxycarbonylamino C_{1-6} alkylamino groups, di(C_{1-6} alkyl)amino C_{1-6} alkylamino groups, heterocycle-amino C_{1-6} alkylamino groups, carboxyl C_{1-6} alkylamino groups, (carboxyl C_{1-6} alkyl)(C_{1-6} alkyl)amino groups, heterocycle-C_{1-6} alkylamino groups, (heterocycle-C_{1-6} alkyl)(C_{1-6} alkyl)amino groups, hydroxy C_{1-6} alkylamino

groups, (hydroxy C_{1-6} alkyl)(C_{1-6} alkyl)amino groups, C_{1-6} alkylthio C_{1-6} alkylamino groups, C_{1-6} alkylaminocarbonyloxy C_{1-6} alkylamino groups, (C_{1-6} alkylaminocarbonyloxy C_{1-6} alkyl)(C_{1-6} alkyl)amino groups, C_{1-6} alkylsulfinyl C_{1-6} alkylamino groups, C_{1-6} alkylsulfonyl C_{1-6} alkylamino groups, groups represented by the formula: $-N(R^{12})SO_2R^{11}$ (wherein, R^{11} represents a C_{1-6} alkyl group, heterocyclic group, C_{1-6} alkyl-heterocyclic group, heterocycle-C_{1-6} alkyl group, hydroxy C_{1-6} alkyl group, amino C_{1-6} alkyl group, C_{1-6} alkylamino C_{1-6} alkyl group, di(C_{1-6} alkyl)amino C_{1-6} alkyl group, carboxy C_{1-6} alkyl group, carbamoyl C_{1-6} alkyl group, trifluoromethyl group, difluoromethyl group, fluoromethyl group, amino group, C_{1-6} alkylamino group or di(C_{1-6} alkyl)amino group, R^{12} represents a hydrogen atom, C_{1-6} alkyl group, hydroxy group or amino group), hydroxy C_{1-6} alkoxy C_{1-6} alkylamino groups, C_{6-10} aromatic hydrocarbon-C_{1-6} alkylamino groups, heterocycle-carbonylamino groups, C_{1-6} alkoxycarbonylamino groups, heterocycle-C_{1-6} alkylcarbonylamino groups, C_{6-10} aromatic hydrocarbon-carbonylamino groups, heterocycle-amino groups, hydroxyimino group, C_{1-6} alkoxyimino groups, oxo group, hydroxyimino C_{1-6} alkyl groups, C_{1-6} alkoxycarbonyl C_{1-6} alkylamino groups, (C_{2-6} alkanoylamino C_{1-6} alkyl)amino groups, C_{6-10} aromatic hydrocarbon groups, and heterocyclic groups (in which, the C_{6-10} aromatic hydrocarbon group or

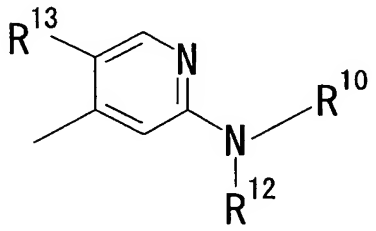
heterocyclic group may be substituted with 1 to 3 substituents selected from halogen atoms, C_{1-6} alkyl groups, C_{1-6} alkoxy groups, C_{2-6} alkenyl groups, formyl group, C_{2-6} alkanoyl groups, carboxyl group, carboxyamino C_{1-6} alkyl groups, C_{1-6} alkoxycarbonylamino C_{1-6} alkyl groups, oxo group, nitro group, cyano group, amidino group, C_{2-6} alkenyloxy groups, hydroxy group, thioxo group, amino group, C_{1-6} alkylamino groups, di(C_{1-6} alkyl)amino groups, amino C_{1-6} alkyl groups, C_{1-6} alkoxycarbonyl groups, carbamoyl group, C_{1-6} alkylcarbamoyl groups, di(C_{1-6} alkyl)carbamoyl groups, thiocarbamoyl group, C_{1-6} alkylthiocarbamoyl groups, di(C_{1-6} alkyl)thiocarbamoyl groups, C_{2-6} alkanoylamino groups, C_{2-6} alkanoyl(C_{1-6} alkyl)amino groups, thio C_{2-6} alkanoylamino groups, thio C_{2-6} alkanoyl(C_{1-6} alkyl)amino groups, formylamino group, formyl(C_{1-6} alkyl)amino groups, thioformylamino group, thioformyl(C_{1-6} alkyl)amino groups, C_{2-6} alkanoyloxy groups, formyloxy group, mercapto group, C_{1-6} alkylthio groups, C_{1-6} alkylsulfinyl groups, C_{1-6} alkylsulfonyl groups, aminosulfonyl group, C_{1-6} alkylaminosulfonyl groups, di(C_{1-6} alkyl)aminosulfonyl groups, C_{1-6} alkylsulfonylamino groups, and C_{1-6} alkylsulfonyl(C_{1-6} alkyl)amino groups; an N-oxide or S-oxide thereof; a salt thereof; or a solvate thereof.

[Claim 8]

A compound according to Claim 5, wherein R^2

represents a group represented by the following formula:

[Chemical formula 2]



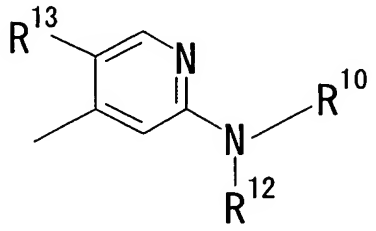
(wherein, R^{10} represents a hydrogen atom, C_{1-6} alkyl group, hydroxy C_{1-6} alkyl group, C_{1-6} alkylsulfinyl C_{1-6} alkyl group, C_{1-6} alkylsulfonyl C_{1-6} alkyl group, carboxy C_{1-6} alkyl group, heterocycle-C_{1-6} alkyl group, or a group represented by the formula: $-SO_2-R^{11}$ (in which, R^{11} represents a C_{1-6} alkyl, heterocyclic, C_{1-6} alkyl-heterocyclic, heterocycle-C_{1-6} alkyl, hydroxy C_{1-6} alkyl, amino C_{1-6} alkyl, C_{1-6} alkylamino C_{1-6} alkyl, di(C_{1-6} alkyl)amino C_{1-6} alkyl, carboxy C_{1-6} alkyl, carbamoyl C_{1-6} alkyl, trifluoromethyl, difluoromethyl, fluoromethyl, amino, C_{1-6} alkylamino or di(C_{1-6} alkyl)amino), R^{12} represents a hydrogen atom, C_{1-6} alkyl group, hydroxy group, or amino group, or R^{11} and R^{12} may, taken together with a sulfur atom to which R^{11} is attached and a nitrogen atom to which R^{12} is attached, form a 5- or 6-membered aliphatic heterocycle, and R^{13} represents a C_{1-6} alkyl group, halogen atom or cyano group); an N-oxide or S oxide thereof; a salt thereof; or a solvate thereof.

[Claim 9]

A compound according to Claim 5, wherein R^2

represents a group represented by the following formula:

[Chemical formula 3]

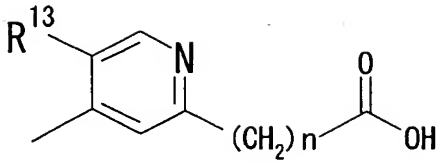


(wherein, R^{10} represents a group represented by the formula: $-SO_2-R^{11}$ (in which, R^{11} represents a C_{1-6} alkyl, heterocyclic, C_{1-6} alkyl-heterocyclic, heterocycle-C_{1-6} alkyl, hydroxy C_{1-6} alkyl, amino C_{1-6} alkyl, C_{1-6} alkylamino C_{1-6} alkyl, di(C_{1-6} alkyl)amino C_{1-6} alkyl, carboxy C_{1-6} alkyl, carbamoyl C_{1-6} alkyl, trifluoromethyl, difluoromethyl, fluoromethyl, amino, C_{1-6} alkylamino or di(C_{1-6} alkyl)amino), R^{12} represents a hydrogen atom, C_{1-6} alkyl group, hydroxy group or amino group, or R^{11} and R^{12} may, taken together with a sulfur atom to which R^{11} is attached and a nitrogen atom to which R^{12} is attached, form a 5- or 6-membered aliphatic heterocycle, and R^{13} represents a C_{1-6} alkyl group, halogen atom or cyano group); an N-oxide or S-oxide thereof; a salt thereof; or a solvate thereof.

[Claim 10]

A compound according to Claim 5, wherein R^2 represents a compound represented by the formula:

[Chemical formula 4]

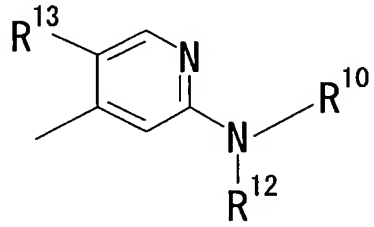


(wherein, R^{13} represents a C_{1-6} alkyl group, halogen atom or cyano group, and n stands for an integer of from 0 to 6); an N-oxide or S-oxide thereof; a salt thereof; or a solvate thereof

[Claim 11]

A compound according to Claim 1, wherein R^1 represents a 2,5-difluorophenyl or 2-fluoro-5-cyanophenyl group, R^3 represents a 4-chlorophenyl, 4-fluorophenyl, 2,4-difluorophenyl, 3,4-difluorophenyl, 3-fluoro-4-chlorophenyl, 4-trifluoromethylphenyl, 5-chloro-2-thienyl, 5-chloro-2-pyridyl, 6-chloro-3-pyridyl, or 6-trifluoromethyl-3-pyridyl group; R^2 represents a group represented by the following formula:

[Chemical formula 5]



(wherein, R^{10} represents a hydrogen atom, C_{1-6} alkyl group, hydroxy C_{1-6} alkyl group, C_{1-6} alkylsulfinyl C_{1-6} alkyl group, C_{1-6} alkylsulfonyl C_{1-6} alkyl group, carboxy C_{1-6} alkyl group, heterocycle-C_{1-6} alkyl group, or a group represented by the

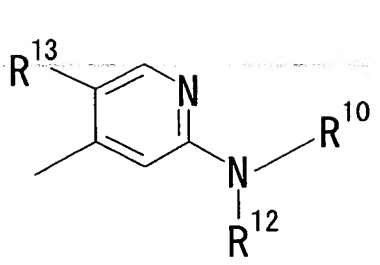
formula: $-SO_2-R^{11}$ (in which, R^{11} represents a C_{1-6} alkyl, heterocyclic, C_{1-6} alkyl-heterocyclic, heterocycle-C_{1-6} alkyl, hydroxy C_{1-6} alkyl, amino C_{1-6} alkyl, C_{1-6} alkylamino C_{1-6} alkyl, di(C_{1-6} alkyl)amino C_{1-6} alkyl, carboxy C_{1-6} alkyl, carbamoyl C_{1-6} alkyl, trifluoromethyl, difluoromethyl, fluoromethyl, amino, C_{1-6} alkylamino, or di(C_{1-6} alkyl)amino), R^{12} represents a hydrogen atom, C_{1-6} alkyl group, hydroxy group, or amino group, or R^{11} and R^{12} may, taken together with a sulfur atom to which R^{11} is attached and a nitrogen atom to which R^{12} is attached, form a 5- or 6-membered aliphatic heterocycle, and R^{13} represents a C_{1-6} alkyl group, halogen atom or cyano group); an N-oxide or S-oxide thereof; a salt thereof; or a solvate thereof.

[Claim 12]

A compound according to Claim 1, wherein R^1 represents a 2,5-difluorophenyl or 2-fluoro-5-cyanophenyl group, R^3 represents a 4-chlorophenyl, 4-fluorophenyl, 2,4-difluorophenyl, 3,4-difluorophenyl, 3-fluoro-4-chlorophenyl, 4-trifluoromethylphenyl, 5-chloro-2-thienyl, 5-chloro-2-pyridyl, 6-chloro-3-pyridyl or 6-trifluoromethyl-3-pyridyl group;

R^2 represents a group represented by the following formula:

[Chemical formula 6]



(wherein, R^{10} represents a group represented by the formula: $-SO_2-R^{11}$ (in which, R^{11} represents a C_{1-6} alkyl, heterocyclic, C_{1-6} alkyl-heterocyclic, heterocycle-C_{1-6} alkyl, hydroxy C_{1-6} alkyl, amino C_{1-6} alkyl, C_{1-6} alkylamino C_{1-6} alkyl, di(C_{1-6} alkyl)amino C_{1-6} alkyl, trifluoromethyl, difluoromethyl, fluoromethyl, amino, C_{1-6} alkylamino or di(C_{1-6} alkyl)amino), R^{12} represents a hydrogen atom, C_{1-6} alkyl group, hydroxy group or amino group, or $R^{11}$and R^{12} may, taken together with a sulfur atom to which R^{11} is attached and a nitrogen atom to which R^{12} is attached, form a 5- or 6-membered aliphatic heterocycle, and R^{13} represents a C_{1-6} alkyl group, halogen atom or cyano group); an N-oxide or S-oxide thereof; a salt thereof; or a solvate thereof.

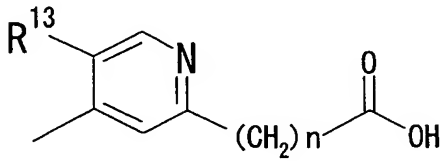
[Claim 13]

A compound according to Claim 1, wherein R^1 represents a 2,5-difluorophenyl or 2-fluoro-5-cyanophenyl group, R^3 represents a 4-chlorophenyl, 4-fluorophenyl, 2,4-difluorophenyl, 3,4-difluorophenyl, 3-fluoro-4-chlorophenyl, 4-trifluoromethylphenyl, 5-chloro-2-thienyl, 5-chloro-2-pyridyl, 6-chloro-3-pyridyl, or 6-

trifluoromethyl-3-pyridyl group;

R^2 represents a group represented by the following formula:

[Chemical formula 7]



(wherein, R^{13} represents a C_{1-6} alkyl group, halogen atom or cyano group and n stands for an integer of from 0 to 6); an N-oxide or S-oxide thereof; a salt thereof; or a solvate thereof.

[Claim 14]

A medicament comprising, as an effective ingredient, a compound as claimed in any one of Claims 1 to 13; an N-oxide or S-oxide thereof; a salt thereof; or a solvate thereof.

[Claim 15]

A medicament according to Claim 14, which is used for prevention or treatment of a disease resulting from abnormal production or secretion of β-amyloid protein.

[Claim 16]

A medicament according to Claim 15, wherein the disease resulting from abnormal production or secretion of β amyloid protein is Alzheimer disease or Down syndrome.

[Claim 17]

A pharmaceutical composition comprising a compound as claimed in any one of Claims 1 to 13, an N-oxide or S oxide thereof, a salt thereof or a solvate thereof and a pharmaceutically acceptable carrier.

[Claim 18]

Use of a compound as claimed in any one of Claims 1 to 13, an N-oxide or S oxide thereof, a salt thereof or a solvate thereof for the preparation of a medicament.

[Claim 19]

Use according to Claim 18, wherein the medicament is a preventive or remedy for a disease resulting from abnormal production or secretion of β-amyloid protein.

[Claim 20]

Use according to Claim 19, wherein the disease resulting from abnormal production or secretion of β amyloid protein is Alzheimer disease or Down syndrome.

[Claim 21]

A method of treating a disease resulting from abnormal production or secretion of β-amyloid protein, which comprises administering an effective amount of a compound as claimed in any one of Claims 1 to 13, an N-oxide or S-oxide thereof, a salt thereof, or a solvate thereof.

[Claim 22]

A treating method according to Claim 21, wherein the


disease resulting from abnormal production or secretion of β amyloid protein is Alzheimer disease or Down syndrome.